ITS NEWS
MDOT Program Office

SEE BACK PAGE FOR LIST OF COMMON ITS ACRONYMS

ITS BASIS OF DESIGN DOCUMENT UNDER DEVELOPMENT

MDOT, along with the support of numerous stakeholders across the state, has completed ITS Regional Architectures and Deployment Plans that scope the future of ITS in Michigan. In order to move from the outlined vision of ITS to a fully deployed and operational system, MDOT is currently developing a Basis of Design Document (BODD) to guide project managers tasked with implementing projects that involve ITS components. The focus of the BODD is two-fold in that it requires extensive background data for those project managers that are new to ITS, while also providing easily accessible references for the more seasoned project managers.

MDOT sees the BODD as the single source for identifying, creating, designing, and implementing transportation projects that include ITS. It is intended to complement and reference the existing programming and design tools such as the Road Design Manual and the ITS Program Office (IPO) Budget Forecaster tool.

The first two sections of the document present the purpose; an overview of how to use the document; and a high level view of the life of an ITS project. Sections 3 and 4 provide an overview and guidance to different tools, programming documents, and design information that a project manager will need to reference during the scheduling, scoping, design and construction of an ITS project.

Section 5 presents detailed design and deployment characteristics for several ITS components including CCTV cameras, DMS and communication alternatives. This section also presents ITS special provisions including how to access, who should review and the process for reviewing.

Section 6 builds on the foundation of material presented in the previous sections and guides the user directly to quick reference project development and design tools. Some examples of the tools presented include checklists for various stages of project development; templates for a Systems Engineering document; and guidance for reviewing component specific plan sheets. Section 6 is designed to give project managers tools and reference materials they can quickly access without sifting through the detail included within the previous sections.

The current schedule for the completion of the BODD includes three more key milestones. The first milestone is a review of the Draft Final BODD by the regional ITS coordinators. Comments from this review will be incorporated and the Final BODD will be completed in early 2009. The third milestone is an initial training session with the regional ITS coordinators also occurring in early 2009. After feedback is addressed, training will be offered to project managers in all regions.

If you have any questions concerning the development of the BODD, contact Jeff Dale at Jeff.Dale@kimley-horn.com.

MDOT LAUNCHES ITSOM

The call to “Get into ITSOM” (Integrated Transportation Systems Operations and Management) is a response to customer demands that we make better use of our transportation resources to provide seamless movement of people, goods and services. Transportation agencies across the nation have traditionally focused on building and expanding their transportation systems, maintaining and preserving the system, and system safety. Constrained by declining revenues, escalating construction costs, and increasing environmental restrictions, agencies must now find ways to optimize the performance of the existing transportation system including multi-modal integration.

One ITSOM strategy called for the department to strongly support the existing Bureau of Highway Delivery’s plan to create a Division of Operations. It combines two critical functions for the operation of the highway system – maintenance and traffic safety. And, just as important, it sets the stage for further integration of MDOT organizational functions and the transportation systems of the future.

The first phase of this new Division of Operations was the merger of the Traffic & Safety Division and the Maintenance Division in the Bureau of Highway Delivery. It was followed closely by the second phase, which added a Systems Operations and Management Section. This new section

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MDOT’S ITS MISSION:
“To develop and sustain a program at MDOT to improve transportation system safety and operational performance using existing and innovative Intelligent Transportation System technologies for economic benefit and improved quality of life.”

Vision
Incorporation of highway operations and management as an integral component of institutional and technical excellence.

Mission
Champion concepts, policies, resources, research, organizational structures and institutional relationships that integrate operations and management into the activities of member agencies.

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will initially involve the MDOT staff working in ITS, VII and Work Zone Safety and Mobility, along with several staff members currently focused on congestion, freight and incident management. It will form the nucleus of our strategic focus on ITSOM.

So how does ITS fit into Systems Operations and Management? With the establishment of the new Division of Operations and Systems Operations and Management Section, we recognize that MDOT has only begun the process to optimize our assets and apply a systematic approach to reduction in delay and unreliability, improved safety and security, increased traveler information and provision of service options.

Optimization of the system describes the mission embraced by most state departments of transportation (including MDOT) as they seek the ultimate in the safe and efficient operation of the transportation network we have today. The need to optimize our transportation system springs from the recognition that growth in demand has far outstripped our ability to provide adequate new capacity. Between 1980 and 1999, the number of vehicle miles traveled on America's roads and highways increased by 76 percent, while capacity grew by only 1.5 percent. Expert analysis estimates that less than half of the new roadway that was needed to handle even current levels of traffic was added in that time.

Our goal must be to make the system work better, safer and smarter, to both save lives time for our citizens. There is no single solution to this challenge, but many. These include rapid clearing of traffic accidents, to advising motorists of traffic tie-ups or weather delays, to improving highway work zones for the safety of both drivers and workers. There is a tremendous amount of technology that can be deployed, and models that can be used.

There are also exciting opportunities within our reach in the next decade. MDOT is a leading member of the AASHTO team that is working with the nation's auto industry and the federal government to create a new capability – VII. The potential payoffs—in lives saved and delays avoided—are dramatic. The technology is achievable, the incentives are high, and all that is needed is the commitment to work cooperatively to achieve this leap forward.

As we transition from a stand-alone ITS program to one that is a component of Systems Operations and Management, we must recognize that modest deployment of technology by itself will not have significant impacts in the absence of a systematic approach to operating the systems. Systems Operations and Management involves changes in procedures, protocols, staffing, budgeting and partnering. For example, improvements in traffic incident management -- one of the major causes of delay – is dependent on changes in field protocols among public safety answering points (PSAPs) and DOTs, on integrating communications, on development of performance targets, on changing contractual arrangements with private service providers.

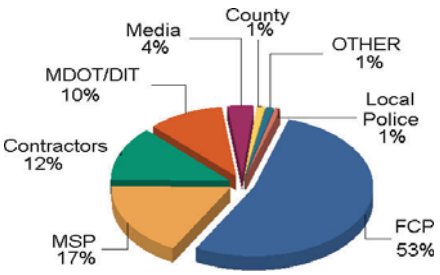
The short history of ITSOM to date is only beginning to demonstrate the potential of a systematic approach to full operational management. While the existing system has absolute limits in the service it can support, those limits have not been approached. Substantial lost capacity can be recovered from unmanaged incidents and delays. Safety and security can be improved. Congestion can be managed in ways beneficial to users. Service options and information can reduce the impact of network saturation on mobility. However, to approach the level of impact that reflects best practice and the potential of many of the strategies will require substantial modification in the style of strategic deployment – especially by contrast with today's approaches. In the Vision, well known strategies are applied – but on an intense and systematic basis to fully exploit their best practice potential and synergies with new strategies.

For more information contact Jim Schultz at schultzj3@michigan.gov

Strategic Goals
- Advancement of State DOTs in their organizational structure and focus on operations
- Enhanced use of performance monitoring and measurement to operate systems on a real time 24-7 basis
- Improved coordination with and focus on operations by other rcommittees and subcommittees of AASHTO
- Enhanced development and deployment of technology, standards, and best practices
- Improved coordination and partnerships with other stakeholders, interests, and associations
- Cooperation with the private sector for technology and information services

MITS CENTER UPGRADES PERFORMANCE REPORTS

The MITS Center has recently upgraded performance measures reports utilizing a new technology platform and a complete redesign of the report layout. Crystal Reports is the new platform being used to generate the monthly reports; Crystal Reports now links directly to the data source and only requires the input of the desired month and year to generate the reports. Previously, it was quite involved to generate the reports. The conversion to Crystal Reports was considered as it will be used in conjunction with the upcoming statewide ATMS software. On behalf of MDOT, URS Corporation developed the new format and style of the reports as well as provided the design, training, and support for the MITS Center staff.



Control Room calls by agency - October 2008

Marketing features were also incorporated to make the reports more visually appealing to the target audience. The data key was transformed from a three page text-based style to a one page graphic-based style utilizing icons that capture the essence of the data source and intuitively link each graph to a corresponding data source throughout the report. The 10 pages of the performance measures report is now organized by the MITS Center's core areas: Control Room, Courtesy Patrol and Traveler Information. Whole sections were added to the report to address items such as Construction Activity and Equipment Maintenance.

A condensed two-page report is in the early stages of development and is intended to highlight each month's critical performance measures. The new reports will be available online at www.michigan.gov/its. After clicking on "Metro Detroit," click on "Reports Archive" under the Performance Reports heading to access the reports. As always, the monthly performance measures will continue to highlight the volume of data being processed and the accuracy of the data being disseminated through MITS Center.

For more information, contact Jonathan Coleman at Jonathan_Coleman@URSCorp.com

SIXTEEN SPECIAL PROVISIONS HEADED FOR FREQUENTLY USED STATUS

The current list of approved statewide Special Provisions for ITS are in the process of becoming MDOT Frequently Used Special Provisions. These SPs will be available on the MDOT FUSP site along with FUSPs from all other categories. The 16 ITS FUSPs are:

- Concrete Spun Pole
- DMS Large
- DMS Remove
- DMS Small, Foundation and Structure
- DMS Structure and Foundation
- DMS Support Structure Remove
- Fiber Optic
- ITS Cabinet with Options
- ITS Communication Equipment Install Only
- ITS Communication Equipment Removal
- ITS Electronics Install Only
- Microwave Vehicle Detection System
- Surveillance System Retrofit
- Surveillance Sytem Remote
- Surverllance System Tower Mount
- Wireless Link Backhaul

The ITS Program Office is also working on mainstreaming the entire Special Provision process. ITS SPs will now be submitted by Project Managers the same way all other SPs are entered into the MDOT system.

For more information, contact Tiffany Holmes at tiholmes@hntb.com.

MDOT PRESENTS AT THE 2008 NATIONAL RURAL ITS CONFERENCE

The 2008 National Rural ITS (NRITS) Conference was held in Anchorage. Two members of MDOT's ITS staff, Angie Kremer and Matt Radulski were lucky enough to find themselves in Alaska during the September 3-5 conference as speakers. Matt and Angie outlined their work with ENTERPRISE, a pooled-fund study established in 1991 between four US states in conjunction with the Federal Highway Administration of the US Department of Transportation.

ENTERPRISE was established to develop and carry out a joint research program to develop, evaluate and deploy ITS technologies. Each year, members contribute funds in support of ITS projects of mutual interest, to develop an annual work plan. These projects typically involve private sector partners working with designated member agencies.

ENTERPRISE has since grown into a multi-national consortium dedicated to the advancement of ITS. Its current partners include active ITS states from across the US, as well as Canadian and European agencies. ENTERPRISE provides a focus for coordinating ITS developments and for sharing results within and outside the program.

The most recent project that MDOT is a sponsor for is the Mobile Advance Traffic Management Systems (ATMS)/ Advance Traveler Information Systems (ATIS) Project that

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was recently approved at the September 6th Broad Meeting in Anchorage.

A Mobile ATMS is a streamlined traffic management software application, similar to the software that runs in TMCs but designed specifically for mobile phones and PDAs. A Mobile ATMS would provide key traffic management functions needed by TMC operators, such as viewing CCTV, changing DMS displays, accessing RWIS data, and creating and viewing incident reports/events. These functions would be able to be accessed at any location where a particular operator's mobile device can access data wirelessly, either using cellular technology or wireless Internet.

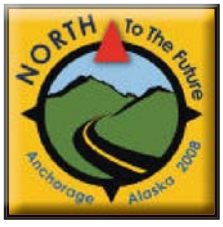
MDOT has partnerrd with the Iowa DOT (IADOT) and Idaho Transportation Department (ITD) to deploy an initial pilot prototype. In 2003-2004, IADOT invested in building centralized, ITS standards–compliant traffic detector, DMS, and CCTV systems. These systems make information about and control of their ITS devices available to external applications using C2C standards from TMDD (Traffic Management Data Dictionary). This environment makes Iowa an ideal test bed for a Mobile ATMS. Using the ITS standards to connect a Mobile ATMS to the existing TMC software is essential to keep the two systems in synch. The software will be piloted in Iowa but documentation will also be produced that assists MDOT and other states in adding support for the applicable ITS standards to their TMC software, which will pave the way for building and using Mobile ATMS.

The proposed pilot system could include one or more of the following functions:

ATMS (DOT and Public Access)
- View current DMS messages
- View CCTV images
- View RWIS data
- View traffic events

ATMS (DOT Access Only)
- Modify DMS messages and message queue
- Control individual CCTV cameras using pre-set views
- View traffic volume

If you have any questions about the ENTERPRISE program, please contact Angie Kremer - KremerA@michigan Matt Radulski - RadulskiM@michigan.gov or check out the website at http://www.enterprise.prog.org/. Information on the NRITS conference is available at www.nritsconference.org.



ITS NEWS BY REGION

BAY REGION

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In Design or Study

I-75/US-10 ITS. Work continues on the concept of operations and preliminary design plans for ITS projects along the I-75 and US-10 corridors in Bay, Saginaw and Arenac counties. The project will incorporate probe data collection along with standard vehicle detection to be utilized for messaging on DMS boards.

Genessee County ITS. Design work has been completed on phase I for the project. The project will be constructed in FY 2009 and will incorporate data collected from microwave vehicle detection devices along portions of the I-75 and I-475 corridors relaying messages to DMS' located on I-75 north and south of I-475.

Future Projects

Triangle Study. Bay Region will be participating in the project to evaluate the I-75, US-127 and I-94 triangle of corridors to determine the traffic congestion incident issues and to identify ITS solutions that may be applicable.

GRAND REGION

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Under Construction

Microwave vehicle detection system for Grand Rapids metro area. This project is installing a vehicle detection system on US-131 and I-196 through Grand Rapids. Real-time vehicle speed, volume, and classification information will be transmitted to the West Michigan TMC for control room use. The system will allow travel times to be generated for posting on existing dynamic message signs and generate website and archival data. Completion date is December 2008.

DMS Repair and expansion project. Project work includes repairs on existing dynamic message signs (DMS) on US-131, and the addition of 1 DMS and 6 traffic cameras within the Grand Rapids area ITS system. Completion date is December 2008.

US-31 Grand Haven/Muskegon. Three traffic cameras will be added on US-31 in Grand Haven and one DMS will be added on SB US-131 near Muskegon. Construction to begin March 2009. This project will provide traffic incident management tools for detection, traveler information, and alternate routing for the Grand Haven area on US-31.

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In Design or Study

Grand Rapids area system expansion project. This multi-jurisdictional project will provide for a major expansion of the ITS network within the greater Grand Rapids metropolitan area. Work will include fiber optic communications infrastructure, dynamic message boards, traffic cameras, and vehicle detection on state and local routes, and the development of an IP network structure for new field devices. This project will continue the implementation of the Grand Rapids Metropolitan Area ITS Strategic Deployment Plan. Project is scheduled to let in early 2009.

West Michigan TMC control room design. Design is underway for relocating the control room within the Grand Region Office.

Statewide RWIS and TMC study. The Grand Region portion of this statewide study involves developing a deployment strategy and plan for future RWIS stations for the region.

Future Projects

Grand Rapids area system expansion project. Construction in 2009-2010. West Michigan TMC control room: Construction in 2009

METRO REGION

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Under Construction

Communications Towers. Two ITS communications tower, in Farmington Hills and Southfield, are being replaced in order to accommodate future expansion equipment and equipment related to VII. Both towers, each over 300 feet tall, are up, and the process of transferring over existing equipment from the old towers to new is beginning.

MITS Center. Physical work at the site of the new MITS Center in Detroit has begun. Earthwork at the site of the Raymond and Rosa Parks Detroit Integrated Transportation Campus, which will include the offices of the MITS Center and the Detroit TSC, is nearing completion. Construction of the building itself is expected to begin in November; in the meantime, the design of the MITS Center control room systems continues, and is expected to be completed by March.

I-75 Curve Speed Warning System. A project to address a high-crash location along I-75 in Hazel Park has been let, and will begin construction. This project uses a series of vehicle speed detectors and overhead, truss-mounted dynamic message signs to detect the speeds of vehicles approaching a severe horizontal change on the freeway, and to warn the oncoming vehicles if their speed exceeds the posted 50-mph advisory speed.

I-96 in Wayne and Oakland counties. Construction and installation work continues on dynamic message signs, CCTV cameras, and vehicle detectors along I-96 in Wayne and Oakland Counties. This project "fills in" gaps in coverage and upgrades components of the existing traffic management system along I-96.

Jefferson Avenue (M-10) CCTV. Construction and installation work has begun on CCTV cameras along Jefferson Avenue in downtown Detroit, MI. This deployment is the Metro Region's first deployment of ITS assets on a non-freeway trunkline. The surveillance system will help MDOT and the City of Detroit manage traffic along this 8-lane arterial, which experiences heavy traffic volumes during both typical weekdays, and during numerous special events in the civic center area of the City.

MITS Center Video Wall. The design and installation of a new video wall at the MITS Center in Detroit has commenced. This video wall will replace the existing video "wall" made up of 36 "television-style" monitors. The new video displays will be moved and integrated into the new MITS Center, once construction on that facility is complete.

I-94, Wayne County. A project to upgrade dynamic message signs, CCTV cameras, vehicle detectors and extend coverage along I-94 from the City of Detroit to the Wayne County/Washtenaw County line has begun construction. Although the first phase of this project has begun construction, future phases have been designed, but will be constructed at a later date as funding becomes available.

In Design or Study

Blue Water Bridge Mock-up. A mock-up and test of the expanded Metro ITS system into the Port Huron and Blue Water Bridge area was completed. The system will not be installed in the field, including a control room at the Bridge, as the first phase of the Metro Region's ITS expansion project.

M-8 (Davison Freeway). Design of DMS, CCTV camera, and vehicle detector installations is underway along a two-mile stretch of the Davison Freeway in Highland Park, which connects the M-10 and I-75 freeways.

I-75 Integrated Corridor Management Concept of Operations. A draft report was completed and second stakeholder meeting was conducted for this project, which is the development of a concept of operations for the seamless traffic management of arterial and freeway facilities along I-75 in Oakland County. the seamless traffic management of arterial and freeway facilities along I-75 in Oakland County.

RWIS Concept of Operations. A project to develop a concept of operations for a region-wide Road Weather Information System was initiated; stakeholder interviews and a stakeholder meeting was completed in October 2008.

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DMS replacement. A design is underway to replace 18 flip-fiber dynamic message signs with new LED dynamic signs at various locations throughout the region. This design is being completed internally by MDOT staff.

NORTH REGION

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In Design or Study
Three ConOps are near completion: North Region RWIS, North Region TMC and Traverse City TMC.

A kick-off meeting for the I-75, US-127, I-94 Triangle Study has been completed.

SOUTHWEST REGION

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In Design or Study
I-94 design and construction.The infrastructure portion of this project is on I-94 and extends from the Calhoun/Jackson County line to the Calhoun/Kalamazoo County line in the Southwest Region. There is also a portion of this project located on I-69 at the interchange of I-94. A Region ConOps will be required for all counties in the Southwest Region. Four Dynamic Message Signs, seventeen CCTV cameras, one RWIS, co-located vehicle detectors and three communications towers highlight the design. This project is getting ready to start. The kickoff meeting occurred on July 10, 2008 and the cost proposal is undergoing the review process.

US-131, I-94, US-31, I-69 and I-196. Creation of Emergency Incident Management Signing Plans and the development of secondary routes. Work will be completed in the next three months

SUPERIOR REGION

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Under Construction
Installation of four ESS (Environmental Sensor Stations) sites and setup of RWIS (Road Weather Information System) for Michigan. Project will be completed in November 2008.

Superior Region ESS

ESS field test (ITS test bed). SSI has installed weather collection data at the field test location on US-2/US-41/M-35 north of Escanaba. Lansing ITS is working to complete the communication network back to the region.

Cut River Bridge project. Project includes:

- Fiber optic strain gauges
- Traffic monitoring
- Weigh in motion
- Weather monitoring
- Wireless link to Mackinac Bridge
- Solar power with battery back up
- Cameras

In Design or Study
Superior Region RWIS. Phase 2 of the RWIS is under development. This will include four DMS. Documents for review will be submitted by early December. Design work under this contract is to conclude by September, 2009.

Superior Region TMC. Work is underway on a ConOps for a TMC in conjunction with North Region.

Future Projects
Construction contract for June 2009 for installation of 4 DMS signs in Superior Region.

Construction contract for December 2009 for installation of up to 21 ESS stations in Superior Region.

UNIVERSITY REGION

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In Design or Study
I-96 ITS. The project is on I-96 from Howell to the Oakland County line, and includes the US-23/I-96 interchange. The current budget for this project is $2.725 million. Due to the budget constraints on this project, the consultant is investigating lower-cost communications options. It was agreed upon that this system will be a non-infrastructure based detection system. In order to stay within budget three CCTV cameras were eliminated from the design as well as one DMS sign. In total, the project consists of seven CCTV cameras and six DMS signs. Soil borings have been taken for placement of the proposed DMS signs. Currently vehicle detection is still part of the design for this project as well as collecting data through vehicle probe data. This project is scheduled for a May Letting.

2009 ITS MICHIGAN EXPO

The 2009 ITS Michigan Annual meeting and Exposition is set for May 12 and 13th at Rock Financial in Novi. Registration will be available at www.itsmichiagn.org. Interested Exhibitors and those interested in VII demonstrators should contact Michele Mueller at muellerm2@michigan.gov

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Acronyms
CCTV - closed-circuit television
ConOps - Concept of Operations
IP - Internet protocol
ITS - intelligent transportation system
MITS - Michigan ITS
TMC - traffic management center
DMS - dynamic message sign
VII - vehicle-infrastructure integration

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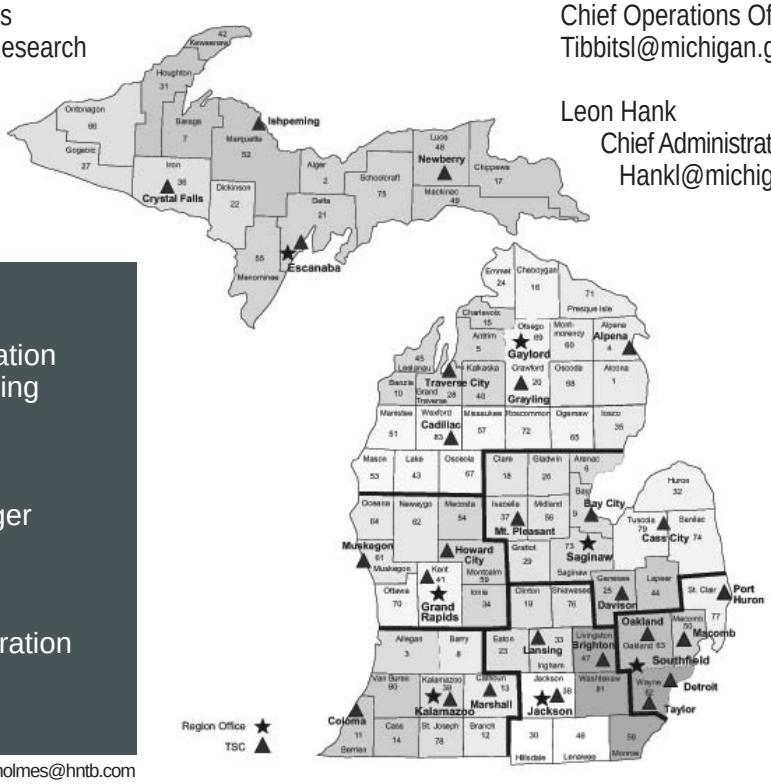

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